Abstract

A method for integrating low-K materials in semiconductor fabrication. The process begins by providing a semiconductor structure having a dielectric layer thereover, wherein the dielectric layer comprising an organic low-K material. The dielectric layer is patterned to form pillar openings. A pillar layer is deposited over the semiconductor structure; thereby filling the pillar openings with the pillar layer. The pillar layer is planarized to form pillars embedded in said dielectric layer. The pillar layer comprises a material having good thermal stability, good structural strength, and good bondability of spin coating back-end materials, improving the manufacturability of organic, low-K dielectrics in semiconductor fabrication. In one embodiment, the pillars are formed prior to forming dual damascene interlayer contacts. In another embodiment, pillars are formed simultaneously with interlayer contacts.